

Claims 1, 2, 4, and 6 through 17 were rejected under 35 U.S.C. § 103 as being unpatentable over Yamada (U.S. Patent No. 5,884,937) in view of Suyama et al. (U.S. Patent No. 5,575,497). Applicants respectfully traverse this rejection.

U.S. Patent No. 5,884,937 to Yamada discloses an air bag device. An air bag device includes an inflator 16 disposed within an instrument panel 14, which is positioned substantially in front of a driver's seat 12 of a vehicle 10. The inflator 16 is connected to an air bag body 20 via a gas-guiding pipe 18. The air bag body 20 covers substantially the upper half of a front side window 22. A front pillar mounting portion 20A of the air bag body 20 is fixed to a vehicle inner side portion 26A of a front pillar 26 of the vehicle 10 by fixing members 29 such as bolts or the like. A roof side rail mounting portion 20B of the air bag body 20 is fixed to a vehicle inner side portion 28A of a roof side rail 28 by the fixing members 29. The fixing members 29 are inserted into mounting holes 31 which are formed at predetermined intervals in the front pillar mounting portion 20A and the roof side rail mounting portion 20B. The air bag body 20 is accommodated in the housing 30 in a folded state. The housing 30 extends along the front pillar and the roof side rail 28 and includes a lid 30A and a base 30B. Yamada does not disclose an air bag operatively connected to an inflator and mounted solely to a pillar of a vehicle to extend downward and sideways in front of an occupant seated in the vehicle when inflated.

U.S. Patent No. 5,575,497 to Suyama et al. discloses a method for developing an air bag for a vehicle. An airbag device A_D for a driver's seat S_D and an airbag device A_N for passenger's seat S_N are disposed in a vehicle laterally symmetrically with each other with respect to a center line of a vehicle body and have substantially the same structure. Each of the air bag devices A_D and A_N includes an inflator I mounted in an outer portion of a seat back S_1 of each of the driver's seat S_D and the passenger seat S_N for injecting a high pressure gas, a first air bag B_s

which is inflated and developed along an inner surface of a side door D by the high pressure gas from the inflator I, and a second air bag B_F which is integrally coupled to the first air bag B_S and inflated and developed along a rear surface of an instrument panel P. The first and second air bags B_S and B_F are formed separately and united integrally by stitching, and are mounted in their compact folded states in the outer portions of the seat backs S₁ along with the inflators. As can be seen by reference also to FIG. 2, two pressure valves V, V are mounted at a joint between the first and second air bags B_S and B_F united integrally by a stitching 1. Each of the pressure valves V is a circular opening 2 defined in the first and second air bags B_S and B_F superposed on each other, and a membrane 4 placed to cover the opening 2 and fixed by a stitching 3. When the membrane 4 is in a state shown by a dashed line in FIG. 2, it air-tightly partitions an internal space in the first air bag B_S and an internal space in the second air bag B_F from each other. When the internal pressure in the first air bag B_S is increased to exceed a predetermined value, the membrane 4 is broken into a state shown by a solid line in FIG. 2 to put the internal space in the first air bag B_S into communication with the internal space in the second air bag B_F. In FIGS. 7C to 7G, each of the inflators I, I_S and I_F is mounted in the roof in place of mounting in the seat back S₁. Suyama et al. '497 does not disclose an air bag being mounted solely to a pillar of a vehicle or to deploy downward and sideways in front of an occupant seated in the vehicle when inflated.

In contradistinction, claim 1, as amended, clarifies the invention claimed as a frontal air bag system for a vehicle including an inflator mounted to vehicle structure and an air bag operatively connected to the inflator and mounted solely to a pillar of the vehicle. The frontal air bag system also includes a trim molding covering the air bag and mounted to the pillar. The air bag is inflated by the inflator to extend downward and sideways in front of an occupant

seated in the vehicle. Claim 12 has been amended similar to claim 1 and includes the feature of the diffuser.

None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claims 1 and 12. Specifically, Yamada et al. '937 merely discloses an air bag device having a front pillar mounting portion of an air bag fixed to a vehicle inner side portion of a front pillar and a roof side rail mounting portion of the air bag body fixed to a vehicle inner side portion of a roof side rail. Suyama et al. '497 merely discloses a method for developing an air bag for a vehicle in which an air bag is stored in a seat back having a first air bag inflated upwardly along a side door and a second air bag coupled to the first air bag inflated upwardly along a rear surface of an instrument panel. Contrary to the Examiner's opinion, only the inflators and not the air bags are stored in the roof in FIGS. 7C to 7G of Suyama et al. '497. The references, if combinable, fail to teach or suggest the combination of a frontal air bag system including an air bag operatively connected to an inflator and mounted solely to a pillar of a vehicle to extend downward and sideways in front of an occupant seated in the vehicle when inflated as claimed by Applicants. Therefore, it is respectfully submitted that claims 1 and 12 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 103.

Claims 3 and 18 through 20 were rejected under 35 U.S.C. § 103 as being unpatentable over Yamada '937 as modified by Suyama et al. '497 as applied to claims 1 and 12 above and further in view of Wipasuramonton et al. (U.S. Patent No. 5,615,909). Applicants respectfully traverse this rejection.

U.S. Patent No. 5,615,909 to Wipasuramonton et al. discloses a vehicle safety apparatus. An air bag 90 is formed from two separate fabric material panels, that is, an outer

panel 150 and inner panel 152. The panels 150 and 152 are sewn together to form the air bag 90 including a neck portion 130 and a body portion 140. Wipasuramonton et al. does not disclose an air bag operatively connected to an inflator and mounted solely to a pillar of a vehicle to extend downward and sideways in front of an occupant seated in the vehicle when inflated.

In contradistinction, claim 20, as amended, clarifies the invention claimed as a frontal air bag system for a vehicle including an inflator remotely mounted to vehicle structure and a diffuser connected to the inflator and extending along a pillar of the vehicle. The frontal air bag system also includes an air bag having at least one panel and a neck portion connected to the at least one panel. The neck portion is operatively connected to the diffuser and the air bag is mounted solely to the pillar. The frontal air bag system further includes a trim molding covering the air bag and mounted to the pillar. The air bag is inflated by the inflator via the diffuser to extend downward and sideways in front of an occupant seated in the vehicle.

None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claim 20. Specifically, Yamada et al. '937 merely discloses an air bag device having a front pillar mounting portion of an air bag fixed to a vehicle inner side portion of a front pillar and a roof side rail mounting portion of the air bag body fixed to a vehicle inner side portion of a roof side rail. Suyama et al. '497 merely discloses a method for developing an air bag for a vehicle in which an air bag is stored in a seat back having a first air bag inflated upwardly along a side door and a second air bag coupled to the first air bag inflated upwardly along a rear surface of an instrument panel. Wipasuramonton et al. '909 merely discloses a vehicle safety apparatus having an air bag with a neck portion and a body portion. The references, if combinable, fail to teach or suggest the combination of a frontal air bag system including an air bag operatively connected to an inflator and mounted solely to a pillar of a

vehicle to extend downward and sideways in front of an occupant seated in the vehicle when inflated as claimed by Applicants. Therefore, it is respectfully submitted that claim 20 is allowable over the rejection under 35 U.S.C. § 103.

Claim 5 was rejected under 35 U.S.C. § 103 as being unpatentable over Yamada '937 as modified by Suyama et al. '497 and Wipasuramonton et al. '909 as applied to claims 1, 12, and 20 above, and further in view of Boerger (U.S. Patent No. 6,050,596). Applicants respectfully traverse this rejection for the same reasons given above to claim 1.

Based on the above, it is respectfully submitted that the claims are in a condition for allowance, which allowance is respectfully solicited.

Respectfully submitted,

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